Vietnam Market for Power Generation, Transmission and Distribution

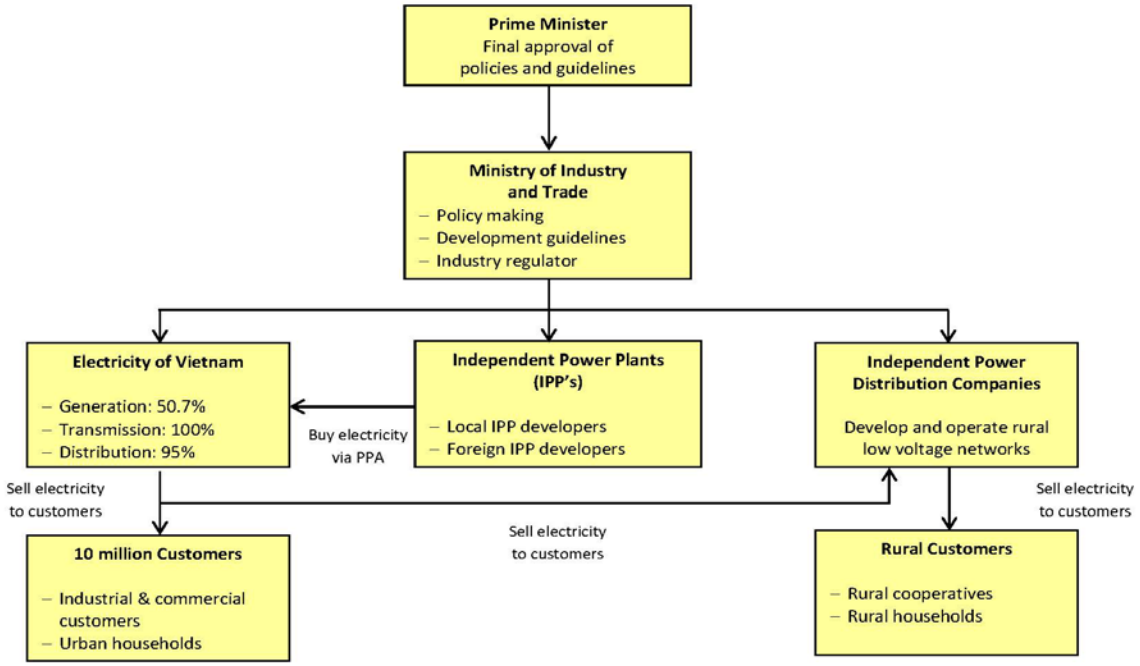
By U.S. Commercial Service – Vietnam
March 2012

Overview

	2009	2010	2011	2012 (estimated)
Total Market Size	2,500	2,750	3,162	3,700
Total Local Production	1,075	1,183	1,360	1,665
Total Exports	N/A	N/A	N/A	N/A
Total Imports	1,425	1,568	1,803	2,035
Imports from the U.S.	92	101	116	203

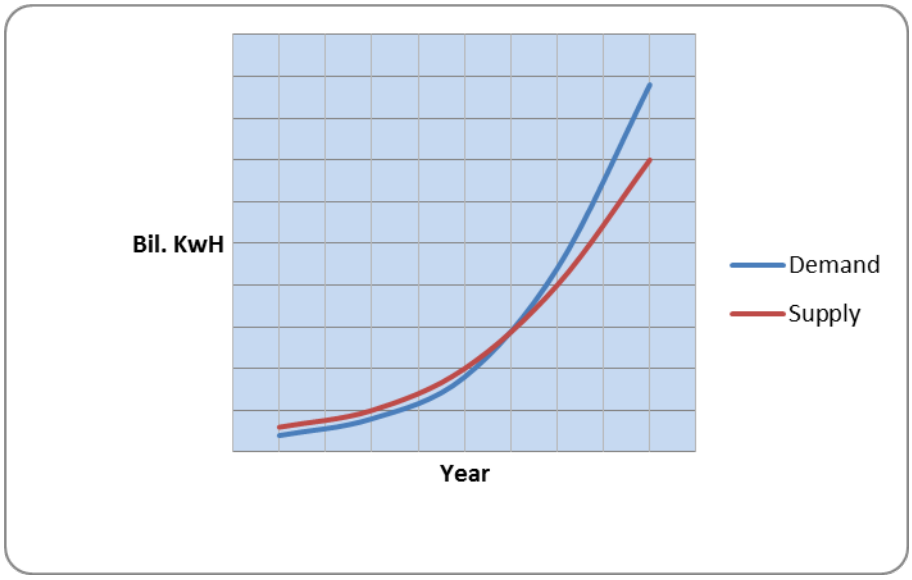
Figures are in $ Millions. Total market size for equipment and services is based on official statistics and estimates. Other statistics are based on U.S. Census and unofficial estimates.

Industry Structure: The electric power sector represents one of the most promising areas for U.S. commercial prospects in the Vietnamese market. At present, Electricity of Vietnam (EVN), a state owned enterprise which reports directly to the Prime Minister, is the singer buyer of electricity from power plants and holds a monopoly on electricity transmission and distribution. The electric power industry is under the jurisdiction and management of the Ministry of Industry and Trade (MOIT).



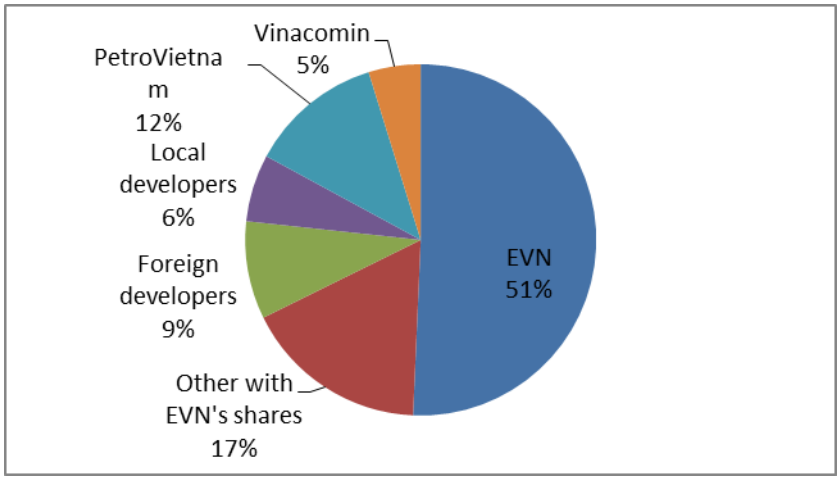
The Vietnamese government relies on the national power development plans to advance the development of the electric power sector. These plans forecast growth in demand and map out the overall development of the power industry to meet that demand going out ten years, while also providing a twenty-year overview.

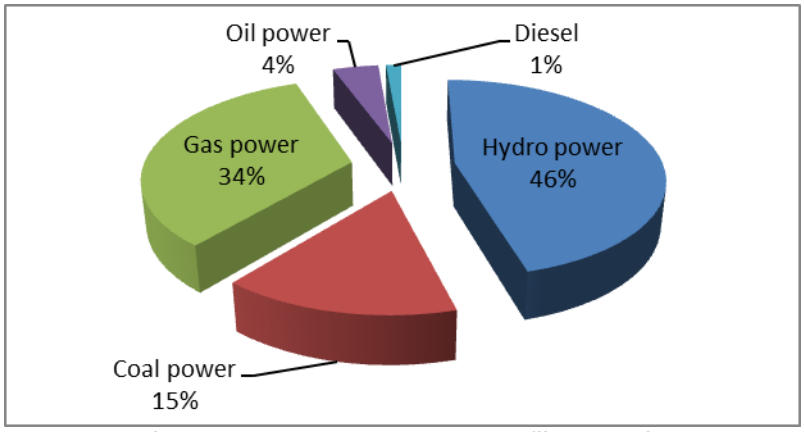
Power Consumption: The country's robust industrialization process has fueled its surging demand for energy in general and electricity in particular. The GVN expects electricity consumption to grow by 12-16 percent annually through 2015. This soaring demand is attributed both to increasing industrial and residential use. Power shortages are expected during this period if adequate measures are not taken to increase the power supply accordingly. It is also estimated that an additional capacity of 4,000 MW will be required per year on average during the 2011 – 2015 time period to meet rapidly growing demand for power.



(Source: Calculation from EVN data)

Power Generation: According to EVN, currently the total installed capacity is approximately 21,000 MW. Below is the installed capacity by ownership and by fuel sources in 2011:





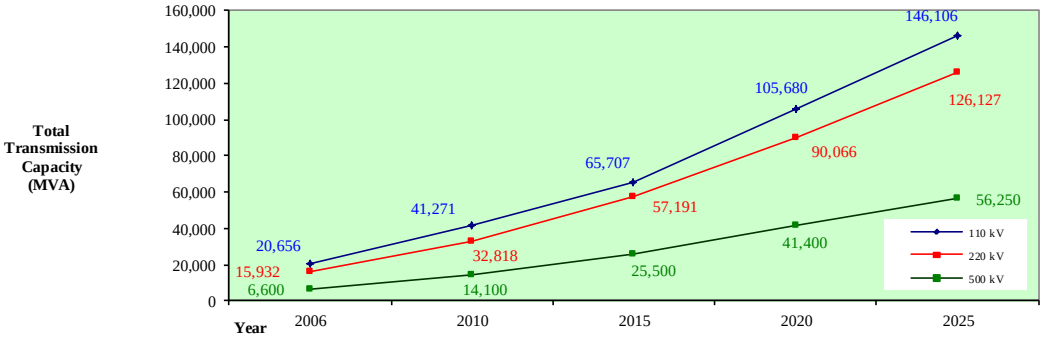
(Source: EVN, Corporate Profile, 2011)

The current number of power plants under construction in Vietnam is 29 with total capacity of 13,766 MW that includes 20 hydropower plants and 9 thermal power plants. The country currently has 21 wind power projects that have been licensed in Binh Thuan, Ninh Thuan, Binh Dinh, Bac Lieu and Lam Dong provinces, of which only one is under operation (Vietnam Renewable Energy of 30MW in Binh Thuan), and two under construction (Cong Ly of 100MW in Bac Lieu, and Thuan Nhien Phong of 50MW in Binh Thuan).

Electricity Pricing: The government strictly regulates electricity retail prices, with adjustments recommended by MoIT and requiring approval by the Prime Minister. A unified tariff is applicable across the country and is low in comparison with other regional countries. Both average urban and rural residential rates are cross subsidized by higher rates for industry, commerce, and foreign consumers. To attract more investment from the private sector in developing IPP projects, MoIT and EVN have been working on a roadmap for price increases and gradual elimination of government's control.

Independent Power Producers (IPPs): As EVN's self-financing and other sources of debt financing can meet only about 66 percent of the total investment requirement, IPPs are expected to carry a large portion of the investment in the power generation sector, including those to be developed by foreign investors. In 2006, MoIT, the government agency responsible for planning, executing bidding, and contracting procedures for large IPPs, issued Decision 30/2006/QD-BCN to regulate the investment, construction and operation of IPPs. To date, a considerable number of foreign investors have shown interest in developing IPP projects in Vietnam, yet few projects have been realized due to obstacles including legal and regulatory issues, low electricity purchase prices by EVN, the lack of a competitive market, and poor coordination among related government agencies. In recognition of these hindrances, MoIT has taken bold measures in an effort to facilitate IPP development including signing a financial advisory agreement in 2006 with the International Finance Corporation (IFC), a financial arm of the World Bank (WB). The major goal of this agreement is to increase private participation in the power sector through open competitive bidding.

Transmission and Distribution: In 2010 the rural electrification rate in Vietnam was 95 percent and is expected to reach nearly 100 percent by 2020. The following chart shows the current transmission system as well as its projected development to 2025.



Projected Expansion of the Power Transmission System to 2025
(Source: EVN)

In addition to the transmission system, Vietnam currently operates a power distribution system of about 115,659 km of 6kV, 10kV, 15kV, 22kV and 35kV lines with a total capacity of 3,662 MVA and 109,199 km of 220V lines with a total capacity of 32,061 MVA. The rapid development of power generation and transmission systems will require expansion of the distribution system.

Vietnam has developed an investment plan for the period 2010-2015 with the total capacity of 48,900MVA for substation (S/S) and 8,219 km of transmission lines (T/L) corresponding to the total investment of USD4.3 billion. With such major investments, Vietnam is expected to have an increased demand for control and protection equipment and devices such as power transformers, circuit breakers, disconnect switches, capacitors, calculated software, telecommunication and information technology equipment, etc. for transmission grid.

Power Master Plan VII

On July 21, 2011, the Prime Minister approved the seventh power development plan for the period 2011-2020 with a vision towards 2030 (the Power Master Plan VII). The Power Master Plan VII emphasized EVN restructuring, power market liberalization, energy efficiency (smart grid), and renewable energy development. The Power Master Plan VII envisions that with forecasted GDP growth at 7 - 8 percent over the period 2011-2030, the demand for electricity will grow by 12.1 percent per year (low-case scenario), 13.4 percent per year (base-case scenario) or 16.1 percent per year (high-case scenario) during the period 2011- 2015.

Industry Restructuring: One of the many key transitional steps towards a competitive electricity market is the restructuring of EVN, a state owned monopoly with many wholly owned subsidiaries, into shareholding companies with different types of shareholders including local and foreign private investors. This restructuring aims to create an increasingly business-oriented enterprise with an increased degree of separation from the government. This enterprise reform involves splitting various subsidiary entities away from EVN to form new shareholding companies.

Establishment of a Competitive Power Market: In 2004, the Vietnamese National Assembly passed the new Electricity Law that outlines the development of a competitive electricity market. In 2006, the Prime Minister issued Decision 26/2006/QD-TTg to detail the implementation of a competitive power market which will be carried out in three phases: (1) The first phase (2005-

2014) focuses on creating competition in power generation with a single buyer, (2) the second phase (2015 – 2022) introduces competition for bulk supply of electricity (wholesale) including supply directly to major industrial customers, and (3) the final phase (after 2022) involves competition at the retail level.

Development of Power Sources: The Power Master Plan VII emphasizes a balanced development of power sources in each region of the country to ensure a sustainable power supply. Thermal coal-fired power, currently accounting for 15 percent, will play an increasingly important role in the medium and long term. Power generation capacity will rise from 21,000 MW in 2010 (that produced 100 billion kWh) to 43,000 MW in 2015 (that produces 200 billion kWh); 70,000 MW in 2020 (330 billion kWh), and 137,700 MW in 2030 (695 billion kWh).

	Targeted Capacity by 2020	Targeted Capacity by 2030
Wind Power	1,000 MW	6,200 MW
Biomass Power	500 MW	2,000 MW
Hydropower	17,400 MW	/
Pumped Storage Hydropower	1,800 MW	5,700 MW
Gas-fired Thermal Power	10,400 MW (with electricity production of about 66 billion kWh)	11,300 MW (with electricity production of about 73.1 billion kWh)
Coal-fired Thermal Power	36,000 MW (with electricity production of about 156 billion kWh)	75,000 (with electricity production of about 394 billion kWh)
Nuclear Power	First nuclear power plant to be put into operation.	10,700 MW (with electricity production of about 70.5 billion kWh)
LNG Power	2,000 MW	6,000 MW

(Source: Mayer Brown JSM)

Renewable Energy: Master Plan VII prioritizes developing renewable energy resources such as wind power, solar power and biomass power. Projections are to increase the percentage of renewable energy power to 4.5 percent by 2020 and 6 percent by 2030.
Specifically, the plan aims to increase the combined capacity of all wind power plants to about 1,000MW by 2020 and 6,200MW by 2030 so as to raise the percentage of wind power from almost zero percent at present to 0.7 percent by 2020 and 2.4 percent by 2030.

Recently, the Government promulgated Decision 37/2011/QD-TTg regarding incentives for wind power development, to which EVN will pay US$6.8 cents per KWh and the State will contribute US$1 cent per KWh to investors (investors get total US$7.8 cents per KWh) currently. The prices will be adjusted based on the Vietnam-US Dollar exchange rates. Besides, wind projects also enjoy benefits under the current CDM scheme.

Nuclear Power: In June 2008, the National Assembly adopted the Atomic Energy Law to regulate the safe, secure, and peaceful use of atomic energy, including participation in and implementation of international nuclear treaties, as well as strengthen international cooperation. In 2009 the National Assembly approved the construction of two nuclear power plants in Ninh

Thuan province. Recently, GVN awarded the construction of Vietnam's first nuclear power plant to Rosatum of Russia; and the second one to a Japanese consortium.

Vietnam's goals for nuclear power generation are as follows:

- First nuclear reactor to be in commercial operation by 2020
- Three more reactors to be in operation by 2021-2024
- By 2030, the country's nuclear power capacity is projected to reach 10,700MW and nuclear power output is about 70.5 billion kWh (10% of the total electricity output in Vietnam)

FDI Encouragement and Challenges: Government of Vietnam's policies are to diversify investment sources, encourage foreign investors in power development with BOT, BOO, PPP and other related schemes. However, Vietnam has faced a number of challenges. For instance, (i) electricity prices are still low. Therefore, existing thermal power plants are unable to buy coal at a competitive price, leading to unattractiveness of new power plant projects; (ii) the procedures for investors under the scheme of BOT are still complicated, with insufficient guidelines; and (iii) equipment prices have sharply increased, leading to increased production cost and thereby reducing the financial attractiveness of power generation projects.

Investment Requirements: According to EVN's estimates, around $123.8 billion will be channeled into national power system development within the next two decades. Spending will average $6.8 billion per year. From 2011-2015, this amount will average nearly $5 billion per year. Of this, 66 percent will be spent on power plants and the remaining 33.4 percent on network development.

According to EVN, in the next 8-9 years, in the base-case scenario, Vietnam plans to build 95 power plants with a total capacity of up to 49,044 MW, of which 44 power plants with total capacity of 24.045 MW will be invested in by EVN itself. In the high-case scenario, Vietnam plans to invest in up to 98 power plants with total capacity of 59,444 MW, of which EVN would build 48 power plants with 33,245 MW, with an estimated total investment of $39.6 billion (including $26.8 billion for power generation.)

Transmission and distribution projects for the period 2010-2015

Names of Projects	**Number of Projects**	**Capacity**	
		S/S (MVA)	**T/L (km)**
500kV S/S	26	23,400	
220kV S/S	108	25,500	
500 kV T/L	21		2,351
220 kV T/L	156		5,686
Total	**311**	**48,900**	**8,219**

(Source: Vietnam National Power Transmission Corporation)

Best Prospects/Services

The power generation market may be divided into five main segments: (1) consulting and engineering services, including project management, (2) installation and construction services, (3) machinery, equipment and materials, (4) supply of equipment, spare parts, materials, consumables, and overhaul and maintenance services (aftermarket), and (5) investment in new IPP power projects in the form of BOT, BT, BTO and JV.

The power transmission and distribution market may be divided into four main areas: (1) consulting and engineering services, project management, (2) installation and construction services, (3) high, medium, and low voltage electrical equipment for the national grid, and (4) medium and low voltage electrical equipment for industrial, institutional and household users.

Opportunities

U.S. companies will find significant business opportunities in the above market segments, including:

- Sales opportunities in ongoing and upcoming power generation projects, including the nuclear power projects
- Investment opportunities in IPP projects
- EVN-funded power transmission and distribution projects.

Resources

The following Web sites may be valuable resources for U.S. companies interested in exploring business development opportunities in Vietnam's electric power industry.

Electricity of Vietnam Corporation (EVN)
http://www.evn.com.vn

Ministry of Industry and Trade (MoIT)
http://www.moit.gov.vn

For more information about Vietnam's electric power industry, please contact:

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